



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/829,598

04/22/2004

Jason A. Gratz

27-06

6855

23713

7590

12/17/2008

GREENLEE WINNER AND SULLIVAN P C

4875 PEARL EAST CIRCLE

SUITE 200

BOULDER, CO 80301

EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/829,598

Applicant(s)

GRAETZ ET AL.

Examiner

ROBERT HODGE

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 30-62 is/are pending in the application.
- 4a) Of the above claim(s) 19-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 30-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/4/08 has been entered.

Response to Arguments

Applicant's arguments, see Remarks, filed 11/4/08, with respect to the rejection of claim 42 under 35 U.S.C 112, first paragraph have been fully considered and are persuasive. The rejection of claim 42 under 35 U.S.C 112, first paragraph has been withdrawn.

Applicant's arguments, see Remarks, filed 11/4/08, with respect to the rejection(s) of claim(s) 1-18 and 43-45 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Pre-Grant Publication No. 2003/0165697.

Applicant's arguments, see Remarks, filed 11/4/08, with respect to the restriction by original presentation of claims 30-39 and 46-50 have been fully considered and are

persuasive. The restriction by original presentation of claims 30-39 and 46-50 has been withdrawn.

The remainder of applicant's arguments filed 11/4/08 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding the declaration filed 11/4/08, said declaration does not provide comparative evidence to show that the prior art of record as applied in the grounds of rejection will not have the same properties as the instantly claimed invention. Until such time that clear evidence is provided showing that the prior art of record as applied in the grounds of rejection does not have the same structure as the instantly claimed invention the rejections will be maintained.

The amended and newly added claims will be addressed in the grounds of rejection below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 51 recites that the variable z is greater than 0.5. Although 0.5 falls within the range as set forth in claim 1, reciting that z is greater than 0.5 makes the range in claim 51 broader than the original range because now z can be any number greater than 0.5 up to infinity.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-18, 30-41 and 43-56 are rejected under 35 U.S.C. 102(a/e) as being anticipated by U.S. Pre-Grant Publication No. 2003/0165697 hereinafter Saitoh.

Saitoh teaches a nanostructured layer 113 of a silicon-germanium alloy of formula $\text{Si}_{(1-z)}\text{Ge}_z$ (where $0 < z < 1$) that has a thickness of 1.0 nm or less, which inherently requires particle diameters that are less than those recited in claims 4-6, wherein the

layer is supported by a substrate 112, that is conductive, said layer is contiguous and continuous and a conductive diluent is present (figure 3, paragraphs [0014], [0017] and [0037]-[0045]). It is noted that the preamble limitation "an electrode for a secondary electrochemical cell" is not given patentable weight because there is no structure in the body of the claims that provides any positive recitation for said preamble and therefore the body of the claim reads on a layer of nano-structured material regardless of its application or intended use. It is further noted that claims 2, 11, 12, 33, 35, 39, 40, 49 and 50, further limit optional structure in the respective parent claims and therefore since one of the two optional structures has been found in the prior art Saitoh reads on the claims as recited. The Examiner notes because the instantly claimed invention has been found in the prior art, it reads on the intended use and the properties recited in claims 13-15.

Claims 41, 42, 46-50, 52-62 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/96847 hereinafter Zhou.

Zhou teaches an electrode for a secondary electrochemical cell comprising a nanostructured germanium layer or an alkali metal alloy layer, such as a lithium metal alloy containing Germanium with a conductive diluent, wherein the nanostructured material can be nanoparticles having a diameter between 1-50 nanometers or a nanofilm that is coated onto a current collector and a binder is present (see pages 3-8). It is noted that claims 56 and 62, further limit optional structure in the respective parent claims and therefore since one of the two optional structures has been found in the prior art Zhou reads on the claims as recited.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 42, 46-50, 57-59, 61 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,346,152 hereinafter Sammels in view of WO 01/96847 hereinafter Zhou.

Sammels teaches an electrode for a secondary electrochemical cell comprising a contiguous/continuous lithium-germanium-silicon alloy having the formula $\text{Li}_a\text{Ge}_b\text{Si}_c$ wherein $0 < a \leq 4.4$, $0.02 \leq b \leq 0.05$ and $c = 1$ (column 3, line 55 – column 4, line 53).

Sammels does not teach an alloy that is nanostructured.

Zhou as discussed above is incorporated herein.

At the time of the invention it would have been obvious to one having ordinary skill in the art to optimize the alloy structure size of Sammels as taught by Zhou in order to provide a secondary electrochemical cell electrode having a high capacity, increased cyclability and that has improved stability thus increasing the overall life of the secondary electrochemical cell and also since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, in the absence of unexpected results. In re Boesch, 617 E.2d 272, 205 USPQ 215 (CCPA 1980).

The Examiner further notes that claims 42 and 61 are product-by-process claims. "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps". See MPEP § 2113. Therefore because all of

the structure recited in claims 42 and 61 are present in the Sammels as modified by Zhou, claims 42 and 61 are included in the above 103(a) rejection.

Claims 30-40 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sammels in view of Zhou as applied above, and further in view of U.S. Pre-Grant Publication No. 2004/0106741 hereinafter Kriesel.

Sammels as modified by Zhou does not teach the specific thickness of the nanofilm, but does teach that the size of the particles used in the film, which when used as a coating such as in Zhou would form a very thin nanofilm.

Kriesel teaches that the thickness of nanofilms can be formed in a range of 1-30 nanometers (paragraphs [0018] and [0191]).

At the time of the invention it would have been obvious to one having ordinary skill in the art to optimize the thickness of the nanofilm of Sammels as modified by Zhou in a range of 1-30 nanometers as taught by Kriesel in order to provide an electrode that has an increased capacity without increasing the overall size of the secondary electrochemical cell that the electrode will be used in and also since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, in the absence of unexpected results. In re Boesch, 617 E.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. H./
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795